1. HTML Forms

1.1 Overview of HTML Forms

Forms are used to collect user input and send it to a server. A basic form structure looks like this:

```
<form action="/submit" method="POST">
  <!-- Form controls go here -->
</form>
```

- `action`: Specifies where to send the form data.
- `method`: Defines the HTTP method (`GET` or `POST`) for sending data.

1.2 Common Input Types and Form Controls

HTML provides a variety of input types and controls for different purposes:

- **Text Input**:

```
<label for="username">Username:</label>
<input type="text" id="username" name="username" />
```

- **Password Input**:

```
<label for="password">Password:</label>
<input type="password" id="password" name="password" />
```

- **Email Input**:

```
<label for="email">Email:</label>
<input type="email" id="email" name="email" />
```

- **Radio Buttons**:

```
<label><input type="radio" name="gender" value="male" /> Male</label>
<label><input type="radio" name="gender" value="female" /> Female</label>
```

- **Checkbox**:

```
<label
  ><input type="checkbox" name="subscribe" /> Subscribe to newsletter</label
>
```

- **Dropdown (Select)**:

```
<label for="country">Country:</label>
<select id="country" name="country">
  <option value="usa">USA</option>
  <option value="canada">Canada</option>
</select>
```

- **Textarea**:

```
<label for="message">Message:</label>
<textarea id="message" name="message" rows="4" cols="50"></textarea>
```

- **Submit Button**:

```
<button type="submit">Submit</button>
```

1.3 Form Validation Basics

HTML5 provides built-in validation for forms:

- **Required Field**:

```
<input type="text" name="name" required />
```

- **Input Pattern**:

```
<input type="text" pattern="[A-Za-z]+" title="Only letters allowed" />
```

- **Input Constraints**:

```
<input type="number" min="1" max="10" />
```

2. HTML Tables

2.1 Table Structure

Tables organize data into rows and columns. A basic table structure looks like this:

```html
<table>
  <caption>
    Student Grades
  </caption>
  <thead>
    <tr>
      <th>Name</th>
      <th>Grade</th>
    </tr>
  </thead>
  <tbody>
    <tr>
      <td>John</td>
      <td>A</td>
    </tr>
    <tr>
      <td>Jane</td>
      <td>B</td>
    </tr>
  </tbody>
</table>
```

- `<table>`: Defines the table.
- `<caption>`: Adds a descriptive title for the table.
- `<thead>`: Groups the header row.
- `<tbody>`: Contains the main table data.
- `<tr>`: Defines a table row.
- `<th>`: Defines a table header cell.
- `<td>`: Defines a standard data cell.

2.2 Styling Tables

While CSS styling is not covered here, you can use basic attributes to enhance tables:

- **Borders and Spacing**:

```html
<table border="1" cellspacing="0" cellpadding="5">
  <!-- Table content -->
</table>
```

2.3 Accessibility Considerations

To make tables accessible:

- Use **scope** in `<th>` to indicate the relationship:

```
<th scope="col">Name</th>
<th scope="row">Grade</th>
```

- Add descriptive captions with `<caption>`.

---

3. Introduction to HTML5 Features

HTML5 introduces new semantic tags to improve page structure and accessibility:

- **Examples**:
  - `<article>`: Represents self-contained content.
  - `<aside>`: Defines related content, like a sidebar.
  - `<figure>` and `<figcaption>`: Groups images with captions.
  - `<section>`: Defines a thematic grouping of content.
  - `<time>`: Represents time or dates.

Example:

```
<article>
  <h2>Article Title</h2>
  <p>This is an example article.</p>
</article>
<aside>
  <p>Related information goes here.</p>
</aside>
```

Learning Activities

Activity 1: Practice Creating Interactive Forms

1. Create a form with the following:

   - Text input for "Name."
   - Email input.
   - Dropdown for "Country."
   - Radio buttons for "Gender."
   - A submit button.

2. Add basic validation (e.g., required fields, input patterns).

Activity 2: Practice Creating Accessible Tables

1. Create a table displaying student names and scores.
2. Add a caption for the table.
3. Use `<th>` with `scope` attributes to improve accessibility.

Deliverable: Practice Exercises

Exercise 1: Build a Registration Form

- Include the following inputs:
    - Name (text, required).
    - Email (email, required).
    - Password (password, required).
    - Gender (radio buttons).
    - Country (dropdown).
    - Submit button.

Exercise 2: Create a Data Table

- Display a table showing employee names, positions, and salaries.
- Add a caption and ensure proper use of `<thead>` and `<tbody>`.
- Include accessibility attributes for better usability.